SERVICE PROCEDURE

14506
MARCH 2014

SUBJECT: SAFETY RECALL
Axle shafts on certain ProStar® models built 18 September 2013 thru 20 December 2013 with Dual Track forward rear axle (feature code 14GXP) and with 200 wheel hubs without cone locks.

DEFECT DESCRIPTION

The axle shafts may not be of sufficient length to fully engage into the side gears of the rear axle differential and may result in axle shaft spline failure, which may result in an unexpected loss of power transmitted to the drive wheels. This loss of power may result in a vehicle stalled on the roadway, which could lead to a vehicle crash.

MODELS INVOLVED

This Safety Recall involves certain ProStar® models built 18 September 2013 thru 20 December 2013 with Dual Track forward rear axle (feature code 14GXP) and with 200 wheel hubs without cone locks.

PARTS INFORMATION

Part Number	Part Description	Quantity
3206S2359	Axle Shaft, Right 172.15	1
3206N2354	Axle Shaft, Left 164.33	1
ZCP3404119	Hub Caps	2
2600966C91	Wheel Hubs	4
3566966C1	Axle Shaft Flange Gaskets	4
3852289R1	Bushing Dowel Axle	16
25711R1	5/8” Washer	32
9411658	5/8” Nut	32
FLTW75W90G or equivalent	Synthetic Gear Lubricant SAE 75W-90	As Required

WARNINGS

WARNING! PARK VEHICLE ON HARD FLAT SURFACE, TURN THE ENGINE OFF, SET THE PARKING BRAKE AND INSTALL WHEEL CHOCKS TO PREVENT THE VEHICLE FROM MOVING IN BOTH DIRECTIONS. FAILURE TO COMPLY MAY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY AND / OR DEATH.

WARNING! IF THE VEHICLE MUST BE RAISED, DO NOT WORK UNDER THE VEHICLE SUPPORTED ONLY BY JACKS. JACKS CAN SLIP OR FALL OVER, POTENTIALLY RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY AND / OR DEATH.

WARNING! ALWAYS WEAR SAFE EYE PROTECTION WHEN PERFORMING VEHICLE MAINTENANCE. FAILURE TO COMPLY MAY RESULT IN PERSONAL INJURY AND / OR DEATH.

WARNING! DO NOT LOOSEN THE AXLE SPINDLE NUTS BY EITHER STRIKING THEM DIRECTLY WITH A HAMMER, OR STRIKING A DRIFT OR CHISEL PLACED AGAINST THEM. DAMAGE TO THE PARTS WILL OCCUR, CAUSING POSSIBLE LOSS OF AXLE WHEEL-END COMPONENTS AND POTENTIALLY RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY, AND / OR DEATH.

WARNING! DURING DCDL DISASSEMBLY, WHEN THE DCDL IS IN THE LOCKED OR ENGAGED POSITION AND THE VEHICLE'S WHEELS ARE RAISED FROM THE FLOOR, DO NOT START THE ENGINE AND ENGAGE THE TRANSMISSION. THE VEHICLE CAN MOVE, CAUSE DAMAGE TO COMPONENTS AND POTENTIALLY RESULT IN PROPERTY DAMAGE, PERSONAL INJURY, AND / OR DEATH.

INITIAL INSPECTION

1. Perform a visual inspection of wheel ends. Inspect axle shaft to see if cone locks are present on axle shaft studs:

    - If cone locks are present, then vehicle has correct length axles, and no repair is necessary.

    - If cone locks are not present on the axle studs, then wheel hubs and axle shafts will need to be replaced.

REMOVAL

NOTE: Procedure steps are operator-side shown, passenger-side typical.

1. Bring truck into shop and park on flat surface.

2. Shift transmission to Park or Neutral, set parking brake, and install wheel chocks.

3. Lift vehicle and position on jack stands.

4. Remove wheels from both rear axles.

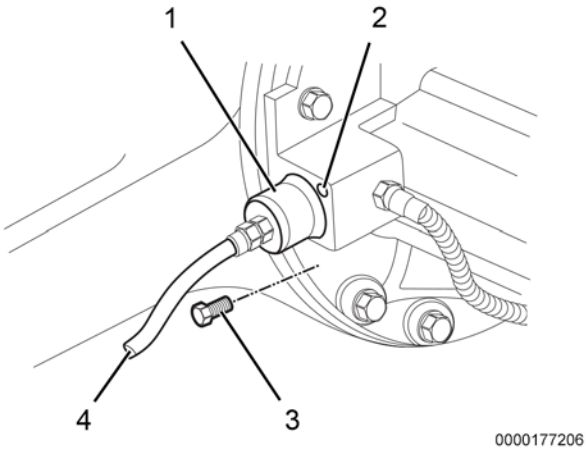


Figure 1. Driver Controlled Differential Lock.

1. Cylinder
2. Storage hole
3. Capscrew
4. Air line

NOTE: The DCDL must be caged before the axle shafts are removed. Left uncaged, the fork and collar will drop out of position.

NOTE: Do not turn capscrew beyond its normal stop.

5. Cage Driver Controlled Main Differential Lock (DCDL) located on operator side of rear axle by performing the following steps:

    - Remove manual engaging capscrew (Figure 1, Item 3) from storage hole in carrier casting (Figure 1, Item 2) next to cylinder (Figure 1, Item 1).

- Remove air line and fitting (Figure 1, Item 4).
- Install manual engaging capscrew into threaded hole of cylinder.
- Turn manual adjusting capscrew clockwise until head is approximately 1/4 in (6 mm) from cylinder cover.

NOTE: The spring brake must be caged.

6. Remove brake assemblies as follows to access hub:
    - Spring brake must be CAGED. Refer to GROUP 04 - BRAKES in Master Service Information on Service Portal℠ for specific service procedures.
    - It may be necessary to back off brake adjustment to obtain enough clearance for drum removal. Refer to Service Portal℠ for procedures specific to slack adjuster.
    - Remove brake drum and set aside.

7. Remove hub caps from both sides of rearmost axle.

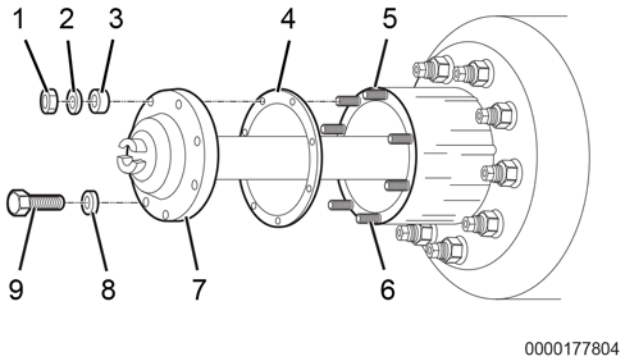


Figure 2. Hub Fasteners.

1. Stud nut
2. Washer
3. Tapered dowel
4. Gasket
5. Hub
6. Stud
7. Axle shaft
8. Lock washer
9. Capscrew

8. Remove stud nuts, capscrews, lock washers, and washers from axle shaft (Figure 2, Items 1, 9, 8, 2, and 7).

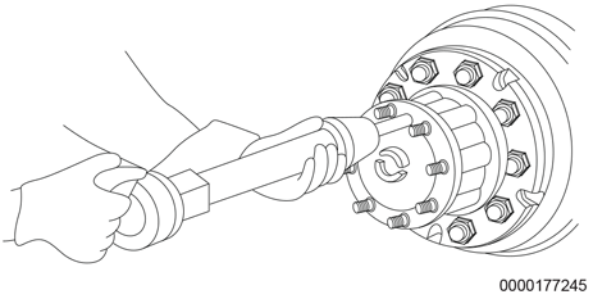


Figure 3. Axle Shaft Removal.

9. Using round hammer bit and air hammer, place bit against axle shaft / flange between hub stubs and alternate locations between studs to loosen axle shaft from hub (Figure 3).

10. Remove axle shaft and gasket from studs and hub assembly (Figure 2, Items 4, 5, and 6).

11. Install a cover over open end of axle assembly to prevent contamination.

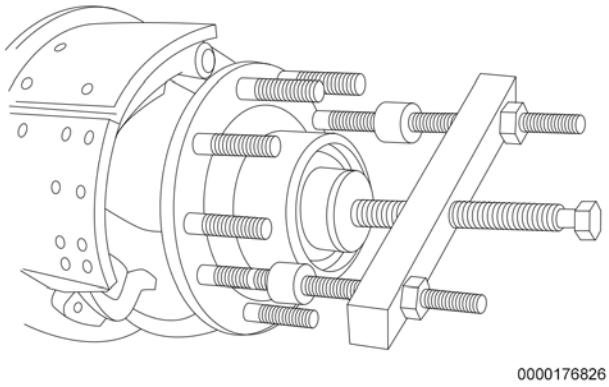


Figure 4. Hub Puller.

CAUTION: To prevent damage to the spindle components, do not exceed 50 lb-ft (68 N·m) of torque when removing the spindle nut.

12. Remove spindle nut system. For PreSet Plus hub assemblies, proceed as follows to remove integrated spindle nut:

    - Remove red locking ring from spindle nut assembly. Use caution not to damage locking ring.
    - Loosen spindle nut to remove hub from spindle. Internal snap ring will allow spindle nut to act as a hub puller.
    - If hub will not come off spindle, remove spiral snap ring and spindle nut assembly. Using a hub puller (Figure 4), remove hub from spindle.

CAUTION: To prevent damage, do not let the outer bearing drop on the floor.

13. Remove spindle nut system. For Standard and PreSet hub assemblies, proceed as follows to remove integrated spindle nut:

    - Slide hub off spindle.
    - Remove outer bearing.
    - If hub is difficult to remove because seal is stuck on spindle, use a mechanical puller to remove hub (Figure 4). If any part of seal remains on spindle, carefully remove it.

DIFFERENTIAL INSPECTION

1. Drain fluid from differential housing and inspect for debris on drain plug and in lubricant.

    - There may be small flakes and particles of metal, which are normal due to bearing and ring gear break-in.

2. Shine a flashlight down opening in axle housing and inspect side gears for any cracks.

    - If cracks are present, they will be large and noticeable.

3. If large chunks of metal are found or side gears are cracked, open a case file, select rear axle as major system, and await instruction.

    - Attach photo(s) of metal recovered.

4. If no large chunks of metal are found, clean drain plug and install.

INSTALLATION

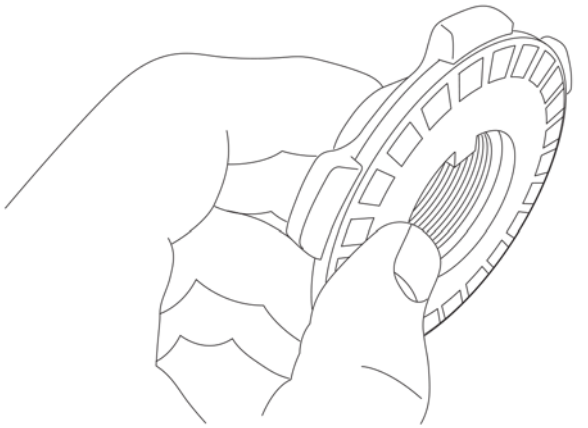


Figure 5. Flat Washer.

1. Seat flat washer into back of spindle nut (Figure 5).

2. Position spindle nut and washer against outer bearing.

NOTE: Make sure that the snap ring is fully seated into the groove in the hub.

3. Install spiral snap ring into snap ring groove in hub.

4. Clean spindle to remove any lubricant, corrosion prevention coating, foreign material, or surface rust that may be present.

NOTE: Do not coat seal journal on spindle.

5. Use synthetic gear lubricant to lubricate bearing journals on spindle, or inside diameter of bearing cones.

6. Use synthetic gear lubricant to lubricate inside diameter of seal.

NOTE: Save red locking snap ring for reuse.

7. If present, remove red locking snap ring from spindle nut.

8. Verify bearing spacer is properly aligned.

9. Align key / flat on washer with keyway / flat on spindle as hub is being positioned onto spindle.

10. Using a smooth, firm motion, place hub onto spindle. When threads on nut engage spindle, rotate nut in a clockwise direction to fully engage threads.

11. Using torque wrench, torque spindle nut to 500 lb-ft (678 N·m) while rotating hub.

NOTE: Use caution not to bend locking ring permanently. If locking ring is damaged or bent, replace with a new one.

12. Examine the three holes in face of spindle nut. One hole will line up with holes in inner washer. Install tab of red locking snap ring through hole of aligned nut and washer. Spread locking ring, and push it over spindle nut and in machined grooves of spindle nut.

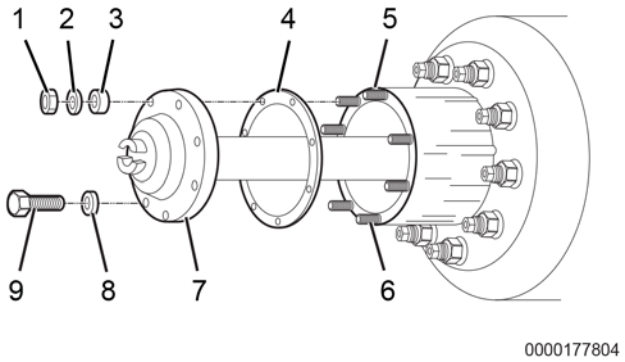


Figure 6. Hub Fasteners.

1. Stud nut
2. Washer
3. Tapered dowel
4. Gasket
5. Hub
6. Stud
7. Axle shaft
8. Lock washer
9. Capscrew

CAUTION: To prevent damage to the hub components and axle shaft, make sure all mating surfaces are clean prior to positioning.

NOTE: Gasket and axle shaft flange must fit flat against wheel hub.

13. Install gasket and axle shaft (Figure 6, Items 4 and 7) into hub (Figure 6, Item 5).

14. Install solid tapered dowels (Figure 6, Item 3) over each stud (Figure 6, Item 6) against axle shaft (Figure 6, Item 7).

15. Install nuts and washers (Figure 6, Items 1 and 2) to studs. Using torque wrench, torque nuts to 145 - 175 lb-ft (197 - 237 N·m) in a star pattern.

16. Install hub cap, lock washers and capscrews (Figure 6, Items 8 and 9). Using torque wrench, torque hub cap bolts to 12 - 18 lb-ft (16 - 18 N·m) in a star pattern.

17. Remove fill plug from barrel of hub.

18. Using synthetic gear lubricant, lubricate drive hub.

19. Install fill plug in barrel of hub. Using torque wrench, torque fill plug to 18 - 20 lb-ft (27 - 34 N·m).

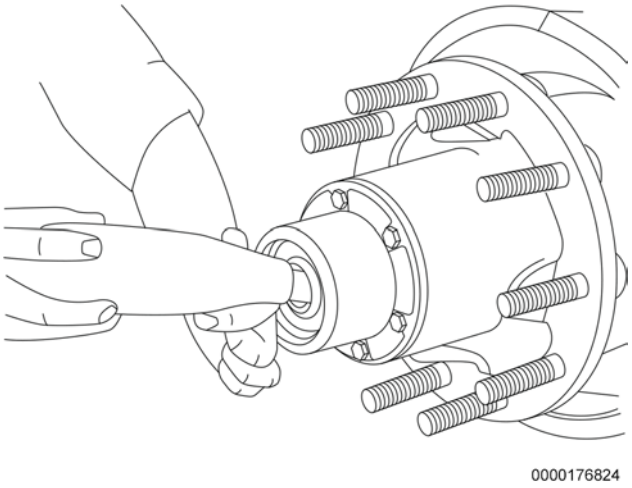


Figure 7. Fill Axle.

NOTE: It may be necessary to add lubricant more than once to adequately fill axle hub.

20. Fill axle hub through hub cap or fill hole with synthetic gear lubricant (Figure 7).

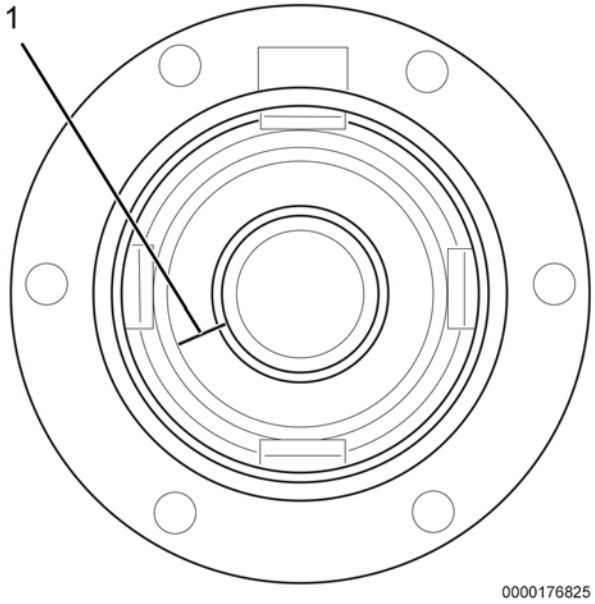


Figure 8. Full Line Mark.

1. Full line

NOTE: Allow initial fill amount to settle for 10 minutes. Repeat fill procedure until oil is at full line on hub cap.

21. Verify hub cap is properly filled to full line mark on face of cap (Figure 8, item 1). Allow initial fill amount to settle for 10 minutes.

22. Install fill hole plug to hub cap.

23. Verify vent is working properly.

24. Fully seat ABS wheel speed sensor against tone wheel of hub by hand.

25. Install drum on hub.

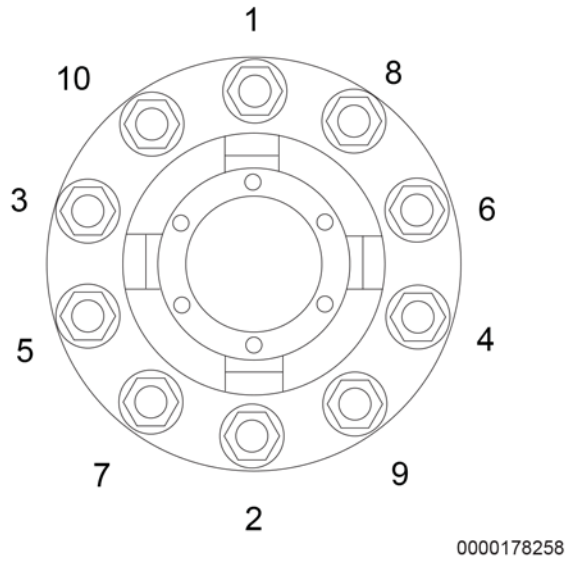


Figure 9. Torque Sequence.

NOTE: Make sure brake drum is fully seated on drum pilot and against hub face before and after installing wheels.

NOTE: Verify wheel assemblies and wheel stud threads are clean and free of debris.

26. Install wheel assemblies as follows:

    - Tighten top wheel nut to 75 lb-ft of torque first. This will draw drum and wheel(s) to hub.
    - Install remaining wheel nuts, and torque to 75 lb-ft using torque sequence (Figure 9).
    - Re-torque all wheel nuts to 450 - 500 lb-ft.

27. Uncage spring brake. Refer to GROUP 04 – BRAKES in Master Service Information on Service Portal[SM] for specific service procedures.

28. Adjust brakes to specification. Refer to Service Portal [SM] for procedures specific to slack adjuster.

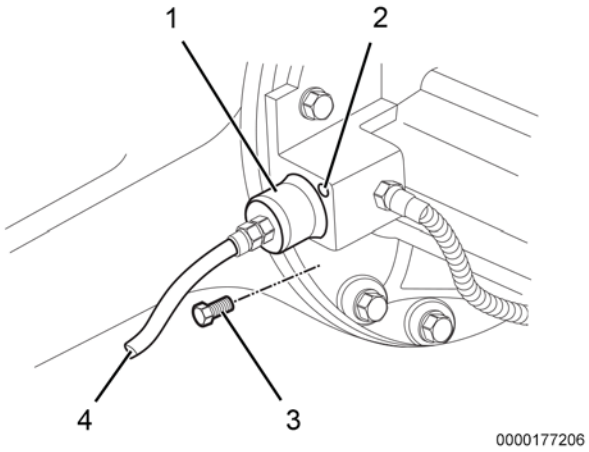


Figure 10. Driver Controlled Differential Lock.

1. Cylinder
2. Storage hole
3. Capscrew
4. Air line

29. Uncage Driver Controlled Main Differential Lock (DCDL) located on operator side of rear axle by performing the following steps:

    - Remove manual engaging capscrew (Figure 10, Item 3) from threaded hole in cylinder (Figure 10, Item 1).
    - Install manual engaging capscrew into storage hole in carrier casting (Figure 10, Item 2).
    - Install air line and fitting (Figure 10, Item 4).

30. Remove jack stands and lower vehicle.

31. Remove differential fill plug and fill with 75W-90 synthetic gear lubricant until properly filled to bottom of fill plug.

32. Remove wheel chocks.

END OF SERVICE PROCEDURE

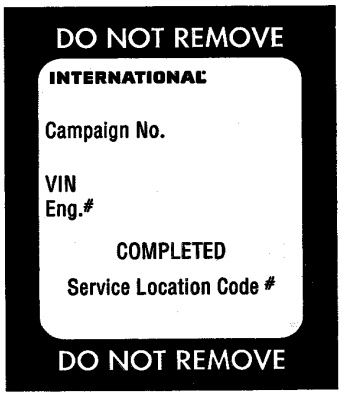
LABOR INFORMATION

Operation Number	Description	Time
A40-14506-1	Inspection, No Repair Necessary	0.3 hr
A40-14506-2	Inspection and Axle Shaft and Hub Replacement	4.3 hrs

CAMPAIGN IDENTIFICATION LABEL

Each vehicle corrected in accordance with this campaign must be marked with a CTS-1075 Campaign Identification Label.

Complete the label and attach on a clean surface next to the vehicle identification number (VIN) plate.



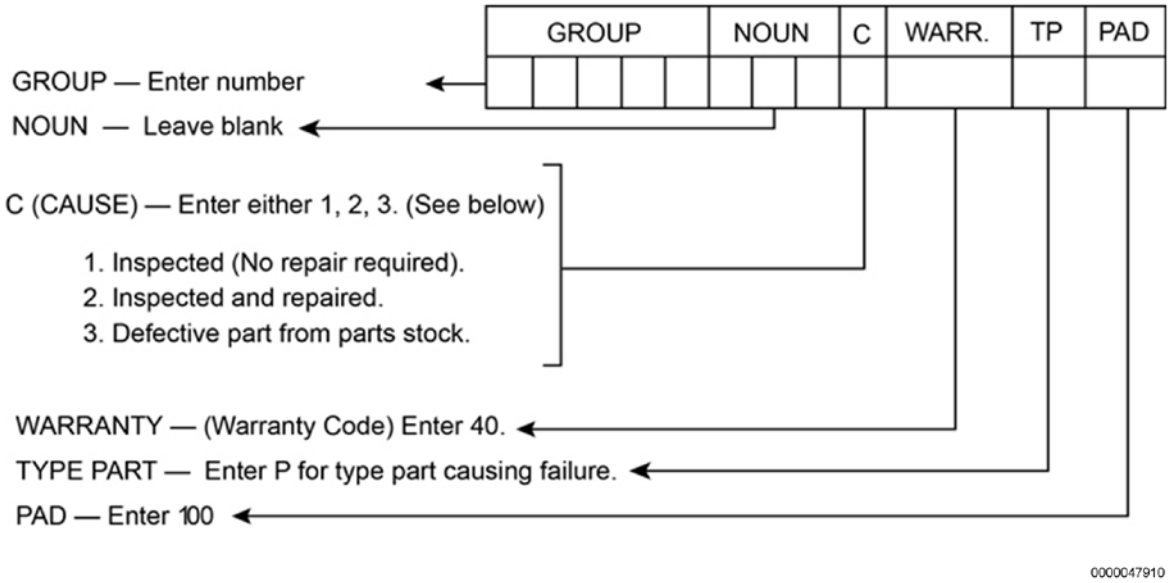
ADMINISTRATIVE / DEALER RESPONSIBILITIES

WARRANTY CLAIMS

Warranty claim expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Safety Recall 14506.

It is important that the coding be completed properly to assist in processing the warranty claim. Complete instructions will be found in the Warranty Policy Manual, Section 7.1.8.

As with all claim submissions, items acquired locally must be submitted in the "Other Charges" tab. The cost of any bulk items (such as a bag of cable tie straps, roll of wire, a barrel of oil, or a tube of silicone) should be prorated for the cost of the individual pieces / amount used during each repair.



UNITED STATES AND POSSESSIONS

The National Traffic and Motor Vehicle Safety Act, as amended, provides that each vehicle that is subject to a vehicle recall campaign must be adequately repaired within a reasonable time after the owner has tendered it for repair. A failure to adequately repair within 60 days after a tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within 60 days, the owner may be entitled to replacement with an identical or reasonable equivalent vehicle at no charge, or to a refund of the purchase price less a reasonable allowance for depreciation.

Dealers must correct all vehicles subject to this campaign at no charge to the owner, regardless of mileage, age of vehicle, or ownership, from this time forward.

Dealers should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your dealer location.

Dealers must make every effort to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible. However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

Dealers involved in the recall process will be furnished a listing of owner names and addresses to enable them to follow up with owners and have the vehicles corrected. Use of this listing must be limited to this campaign because the list may contain information obtained from state motor vehicle registration records, and the use of such motor vehicle registration data for purposes other than this campaign is a violation of law in several states.

CANADA

Dealers must correct all vehicles subject to this campaign at no charge to the owner, regardless of mileage, age of vehicle, or ownership, from this time forward.

Dealers should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your dealer location.

Dealers must make every effort to promptly schedule an appointment with each owner to repair his or her vehicle as soon as possible. However, consistent with the customer notification, dealers are expected to complete the repairs on the mutually agreed upon service date.

Dealers involved in the recall process will be furnished a listing of owner names and addresses to enable them to follow up with owners and have the vehicles corrected. Use of this listing must be limited to this campaign because the list may contain information obtained from state motor vehicle registration records, and the use of such motor vehicle registration data for purposes other than this campaign is a violation of law in several states.

EXPORT
Export Distributors should proceed immediately to make necessary correction to units in inventory. All inventory vehicles subject to this recall campaign must be corrected prior to sale, transfer or delivery. If vehicles have been sold or transferred and you are in receipt of Customer Notification Letters and Authorization for Recall Service cards for those vehicles, the transfer location or customer must be notified immediately from your distributor location.

Export Distributors are to submit warranty claims in the usual manner making reference to this recall number.

Export Distributors are expected to provide full cooperation and follow-up with respect to this important subject matter. If you have any questions or need further assistance, please contact the Regional Service Manager at your regional office.

NAVISTAR, INC.